

**Grant Line Canal Barrier Environmental Issues**  
**May 18, 1998**

There are still two major steps to complete before completing the Interim South Delta Program EIR/EIS with a Grant Line Canal Flow Control Structure as a final component. The first is getting a Biological Opinion that allows its installation and operation. The second is getting a 404 Alternative Analysis by the Corps that shows that an ISDP with a Grant Line Canal flow control structure is the "least environmentally damaging practicable alternative."

This paper discusses the issues regarding the:

- Grant Line Flow Control Structure in the Draft Biological Opinions from FWS and DFG,
- Other environmental impacts that occur with the operation of Grant Line Canal (as noted in the ISDP DEIR/EIS), and
- Corps concerns in issuing a 404 Permit for ISDP with a Grant Line Canal facility.

This paper concludes with a summary of an analysis of the ISDP without Grant Line Canal Flow Control Structure, and a recommendation on an alternative solution to the Grant Line structure that should satisfy SDWA, DFG, USFWS, and the Corps.

**1. Draft Biological Opinion Issues**

Of the two Draft Biological Opinions the Department has received (DFG and FWS) neither are allowing the construction and operation of a permanent flow control structure at Grant Line Canal. Neither opinion has allowed relocation of a Grant Line Canal structure to the west end. The FWS opinion does allow continued operation of the Temporary Barriers Program. The DFG opinion states, "No flow control structure will be installed and operated in Grant Line Canal. Agricultural diversions, as needed, shall be extended to lower water depths in Grant Line Canal. These extended diversions shall be screened." [RPM 4.5]

The main reason the flow control structure has been denied is because of concerns over delta smelt in June and July. When the Grant Line structure operates, it creates a "hydraulic barrier" upstream at the Head of Old River. This "hydraulic barrier" forces more water (that the SWP/CVP export) down the San Joaquin River. When State and federal pumps operate, additional reverse flows at Turner and Columbia Cuts cause flows to reverse in the central Delta.

Flow

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reversals can cause the delta smelt to stray, and become directed toward the export pumps. Reducing the reverse flow by either raising the radial gates at the Grant Line structure (providing no benefit to SDWA), or by reducing exports are the only ways to reduce the impact on delta smelt.

The other FESA/CESA issues regarding the Grant Line Canal Flow Control Structure's construction and operation are:

- Loss of 1/4-acre of shallow water habitat,
- Increased predation at the barriers, and,
- Increased entrainment at unscreened agricultural diversions.

By comparison, these will have minor impacts on the effective operation of the Grant Line Barrier.

The DFG opinion tells DWR/Reclamation to solve the Grant Line Canal problems by dredging Grant Line Canal and extending and screening agricultural diversions along Grant Line Canal. To do this, DWR must work with SDWA to identify impacted farmers, and provide assurances the ISDP without the Grant Line structure can protect the SDWA farmers. Staff analysis shows that extending and screening diversions on and upstream of Grant Line Canal can be done, but additional losses of shallow water habitat (50-acres) will result.

In a conversation on May 15, 1998 with Steve Roberts, Alex Hildebrand stated his basic concern is that he does not want to deal with "government assurances," since the "next administration may not follow through and meet their obligations." Alex was told that all commitments would be included in the FEIR/EIS and monitored to assure compliance. Alex wants Grant Line Canal because it provides SDWA the assurance they want: regardless of how the SWP/CVP operates in the future, if SDWA has all three flow control structures, the projects cannot harm SDWA farmers.

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## 2. Draft EIR/EIS Impacts

Grant Line Canal causes impacts to the following resources (discussed in the EIR/EIS):

### *a. Water Quality*

Flow patterns only change locally when MR and ORT operate. With GLC in operation, circulation can become a problem in south Delta channels, since GLC can create null zones along Old River and Middle River. This is a problem at the Tracy Treatment Plant and for the City of Tracy's water supply. It is also a problem for the SDWA farmers.

Also, because the GLC barrier creates a hydraulic barrier and keeps more water in the San Joaquin River, water quality can slightly degrade in the central Delta and at the Banks Pumping Plant.

### *b. Aquatic Resource Impacts*

As stated above, anything that changes flow direction in rivers is a concern of the fishery agencies, and GLC is the flow control structure that reverses flows on Turner and Columbia Cuts the most. With Grant Line in operation, fish will also be trapped more easily upstream of the flow structures.

### *c. Terrestrial Resource Impacts*

Removal of GLC will protect populations of Mason's and of Delta tule pea along the channel islands between Grant Line Canal and Fabian Bell Canal.

### *d. Navigation*

### *e. Recreation*

Even with boat locks at Grant Line structure, an unavoidable significant impact is created. Grant Line Canal is the most popular water skiing channel in the south Delta. Most south Delta skiers use Grant Line, West Canal and Old River. The GLC cuts the skiing area into two sections. Delays for boats passing through the boat lock are estimated to be between 10 and 20 minutes during busy weekend hours.

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### *f. Socioeconomic*

If Grant Line is installed, marina businesses will suffer, since the flow control structure will prevent people off from water skiing between Grant Line Canal and West Canal and Old River. This will affect the Tracy Oasis Marina the most, but will also impact Del's Boat Harbor, Lazy M Marina to some extent. The people at water ski clubs and the Discovery Bay marina will also be affected, since recreational boaters avoiding boat locks will begin to congregate and congest the western channels.

It may be necessary to compensate or buy out the Tracy Oasis Marina (located on Grant Line Canal) if marina business suffers too much after installing the Grant Line structure.

### *g. Land Use/Planning*

We need to mitigate for a house located on the channel island about 500-feet east of the proposed Grant Line Flow control structure site. We will probably need to buy them out, since the flow control structure will likely be too close to their dock and house.

### *h. Hazards*

There is an important safety issue staff is still discussing with the San Joaquin Sheriff Department concerning response time to accidents in south Delta channels.

The sheriff is concerned that a boat lock system will slow the response to emergencies by 10-15 minutes (depending on the time required for boats to pass through the boat locks). Grant Line Canal is along their patrol route. Additional measures to avoid delays in response time would be required if a Grant Line structure were installed.

## 3. The 404 Alternative Analysis

The Corps main concern is the first project purpose: improving water levels and circulation in south Delta channels. In discussions with Jim Monroe, he feels

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the inclusion of "circulation" limits the number of types of alternatives "that meet the project purpose" to one: a "barrier" solution. DWR staff has revised the 404 Alternative Analysis to better explain the need to improve circulation in south Delta channel. However, unlike the EIR/EIS where the Lead Agencies write the purpose statements, the Corps does have the authority in the 404 to change the purposes.

Once the "project purposes" issue is resolved, the next step is deciding which of the alternatives that meet the project purpose is the "least environmentally damaging." There are two alternatives that can improve water levels and circulation in south Delta channels. The first is the preferred project for ISDP (three flow control structures). The second alternative is ISDP without Grant Line Canal flow control structure.

The second alternative was discussed with Jim Monroe last summer and he felt removal of a Grant Line flow control structure would be a positive step, and he encouraged me to continue to look at similar "non-barrier" alternatives. This alternative will substantially meet the project purposes.

There is one last issue regarding the Corps responsibility with the 404 Alternative. The Corps may decide that it is not in the "public interest" to allow Grant Line flow control structure to be installed even if it is the only method to meet the objectives. In other words, they may only permit Middle River and Old River at Tracy, and the Head of Old River structures regardless of our needs.

Based on concerns of fishery agencies and the operating restrictions that will likely be imposed if the agencies ever agree to operating a Grant Line Flow Control Structure, a project without Grant Line Canal may not operate much differently than a project with it.

#### 4. The "Reduced Export" Study vs. ISDP Without Grant Line Canal Flow Control Structure

The water levels with this reduced pumping closely represent the water levels the SDWA would expect if there was little or no SWP or CVP in operation. This analysis is important since the

1982 lawsuit alleges, “the operations of the CWP and the SWP export pumps have caused lowering of water levels, reversing flows, and diminishing the influence of the tides in the SDWA.”(underlined for emphasis)

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A level with minimal exports represents a scenario without impacts to SDWA from the export pumps. If an alternative can show similar water levels, then the program should satisfy the “improve water levels” part of the first project objective. These criteria also become important in determining the “least environmentally damaging practicable alternative that meets the project purposes” [CWA Section 404]. The water levels reached with only Middle River and Old River at Tracy in operation are less than ISDP but much closer to those reached by cutting exports to levels where impacts to SDWA are not significant (500 cfs SWP and 1,000-cfs CVP).

From the point of view of SDWA, DWR, and Reclamation, the preferred alternative (three flow control structures and a fish structure) is the preferred alternative since it provides the highest water levels, and also provides water circulation in south Delta channels. It “ranks” higher than a non-Grant Line alternative. From the Corps perspective, they will look at the LEDPA that meets the project purposes. If Grant Line flow control structure causes more environmental damage than the non-Grant Line alternative, then, the Corps will select the non-Grant Line alternative since it is the “least environmentally damaging” alternative that meets the project purposes.

5. Adopting ISDP With Only the Middle River and Old River Tracy Flow Control Structures, and Head of Old River Fish Control Structure

Middle River and Old River at Tracy flow control structures are needed for the first purpose, since the flow control structures are needed for both improved water levels and adequate circulation of water in south Delta channels. With the Head of Old River fish control structure being proposed as mitigation, the Middle River and Old River at Tracy structures are also needed to keep water levels in south Delta channels at acceptable levels.

The alternative eliminating Grant Line flow control structure can substantially meet the objectives of improving water levels and circulation. As the modeling results in the DEIR/EIS and the Biological Assessment show, at times water levels are a few tenths of a foot lower than the “no export alternative.” To fully satisfy SDWA, additional work at the agricultural diversions along Grant Line Canal and at selected upstream locations need to be done to improve water levels. Without flow control structures, the water levels can only be “improved” (see project purpose) by

dredging deeper and extending the pump inverts deeper into the channel. Carrying  
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out a dredge and screen component to the program should be less expensive than the \$15-million Grant Line Canal flow control structure.

Staff has obtained the necessary permits to analyze the channel bottom sediment along Grant Line in the event this alternative gains momentum. Sediment sampling is scheduled to begin June 1.